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ABSTRACT

To determine the degree of computer utilization for administrative and instructional purposes at Polk Community College, a comparative study was made of the 26 Florida community colleges that have computer systems in order to ascertain: (1) the extent of computer utilization for administration and instruction, and (2) the cost of the computer hardware and personnel. Seven hypotheses were tested. Questionnaires were mailed to presidents of the 26 colleges, with a response rate of 100%. A total of 21 questionnaires were utilized in the tabulation and computation. The t and chi-square tests were used to validate the questionnaire data. Results of the data analysis showed: (1) there was a significant difference in the number of computer applications between the smaller and larger Florida community colleges, and a significant difference between Polk Community College and all the other colleges; (2) there was a significant difference between administrative costs of the Polk Community College computer center and the other colleges with similar FTE size; (3) there was no significant difference between the costs of the computer centers; (4) there was no significant difference between mean costs per application and the number of applications in colleges with similar FTE size; (5) there was no significant difference between the cost of applications and the size of the memory core in community colleges with similar FTE size; and (6) there was no significant difference in the utilization, annual budget, and size of the memory core at colleges with similar FTE size. (For related document see JC 740 024, 026, 027.) (DB)

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AN ANALYSIS OF COMPUTER UTILIZATION FOR ADMINISTRATION AND INSTRUCTION IN THE FLORIDA COMMUNITY COLLEGE SYSTEM*

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UNIVERSITY OF CALIF.
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JAN 25 1974

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STATEMENT OF THE PROBLEM

On March 26, 1973 during the monthly meeting of the Polk Community College District Board of Trustees, the question of computer utilization was brought up for discussion. The Board Members expressed concern about the extent of computer utilization at Polk Community College. It was felt by the majority that maximum utilization was not realized and it was suggested that an in-depth study be conducted to determine the degree of utilization of the computer for administrative and instructional purposes at Polk Community College. With this interest expressed by the Board Members it was decided to conduct a state-wide study to determine: 1. the extent of utilization of computer for administration and instruction, 2. the cost of the computer hardware and personnel, and 3. compare the cost and utilization of the computer with the rest of the Florida Community College System, especially with colleges of similar FTE size.

A major objective of the study is to determine the degree of utilization of the computer system and its cost. The allocation of the colleges resources in this area is significant and the question is often asked by concerned individuals if Polk Community College is obtaining the maximum utilization of its computer in light of the resources allocated for this purpose. A comparison of utilization and cost with other Florida Community Colleges may reveal factors relating to utilization not presently contemplated by the Board of Trustees.

SCOPE AND LIMITATIONS

This study is limited to the twenty-six Florida Community Colleges which have computer systems. The colleges are grouped into FTE (full-time equivalent students) sizes, for the purpose of this study into three groups: 1. Small, 512-2350, 2. Large, 2938-8715 FTE, and 3. Colleges of similar FTE size as Polk Community College. This group size varies from 1700 to 3000 FTE's consisting of seven colleges. With these groups the study will try to determine the degree of computer utilization and cost for administrative and instructional data processing.

SIGNIFICANCE OF STUDY

The significance of this study may result in determining problems relating to computer utilization for administration and instruction. There is little information available in the Florida Community College System in connection with computer utilization based upon empirical data evaluating effectiveness and efficient use of computing resources. It is anticipated that the study will contribute to the knowledge of computer utilization and be a tool of communication between community colleges in this area.

Computer utilization for administrative and instructional functions is costly and time consuming. To what degree of utilization the computer systems have been developed on a campus may determine the success or failure of programmed individual instruction and the efficient and effective administration of the college. With the demand for more information by state and federal governments, community colleges are faced with a problem of reporting data on faculty, students and resources which has increased the need for accurate and

factual data. Only with a computer based system can such a high volume of information be analyzed and used for decision making.

For the last ten years a majority of Florida's Community Colleges has independently developed and implemented their own computing systems. These uncoordinated efforts have resulted in duplications and high costs. In reviewing these facts, it is felt a need may exist therefore to determine if computing services could be coordinated on a statewide basis and to determine what percentage of each college budget is allocated, or can be safely allocated for computing services necessary to facilitate instruction and administrative applications of data.

REVIEW OF RELATED LITERATURE

From the review of available literature in the State of Florida Community College System, it became apparent that little empirical data is available evaluating computer utilization. One study was located conducted by Schafer (1) dealing with a similar problem in 1970. In the survey conducted by Schafer, the major objective was to determine the type of computer equipment used and instructional programs.

In March of 1973, the Office of Information Systems at the Florida Department of Education issued its annual Survey of E.D.P. Utilization by School Districts and Community Colleges. (2) The publication contains valuable information regarding the present status of computer utilization in the State. However, the survey does not go far enough to determine actual cost or determine the utilization for instructional and administrative computing.

STATEMENT OF HYPOTHESIS

The hypothesis stated in the null form are . . .

There is no significant difference:

1. In the number of computer applications between the smaller and larger community colleges and Polk Community College,
2. the cost of the computer operations per FTE unit at Polk Community College and the cost of computer operations per FTE unit of Community Colleges of similar FTE size,
3. between the cost per application at Polk Community College and the number of applications at Polk compared with the mean cost per application and the mean number of applications at Community Colleges of similar FTE size,
4. between Polk Community College's cost per application and memory core and the mean cost per application and memory core for Community Colleges of similar FTE size,
5. between the administrative costs of the computer center at Polk Community College and the administrative costs of any other Community College of similar FTE size,
6. between the mean number of FTE instructors and the mean number of non-instructional computer center personnel of the small community colleges < 2900 FTE as compared to the larger community colleges > 3000 FTE,
7. in the Utilization, Budget and Memory Core of Polk Community College Computer Center and the Community Colleges of similar FTE size. (< 1700 ~ > 3000)

BASIC ASSUMPTIONS

The present assumption of the study is that there are common problems confronting all Florida Community Colleges in their development of their computer systems. It is also assumed that budgetary allocations, quality of computer center personnel, administrative structure and philosophy has a direct influence on the development of their computer applications and utilizations.

The administration assumes that the services obtained from the computer center do not justify the cost. It is assumed that the cost of computer operations at Polk Community College is greater than at other State community colleges with similar FTE unit size. The degree and extent of computer utilization depend on certain variables such as the quality of personnel, budgetary allocations and computer equipment which differs greatly from one campus to another.

The college administration has decided to establish a computer based Management Information System and implement Planning, Programming, Budgeting and Evaluation System for decision making. In order to meet the above objective, it is imperative that the present computer system be evaluated to determine the present state of development, utilization and cost. The present system is not organized in an effective and efficient way and in some cases fails to provide an adequate data base for management decision making and instructional programs for students. It is assumed by many administrators and faculty members that the present system is in need of improvement to meet Polk Community College's present and future needs in computing services.

DEFINITION OF TERMS

1. Computer - It is a machine for performing complex processes on information without manual intervention.

2. Applications and Utilization - Consists of problems to which the computer is applied. Utilization in this contex is used as a measurement for the number and extent of applications made with the computer.

3. Computer Language - A set of instructions for the use of a programmer. The most common computer languages are FORTRAN, COBOL, NEAT 3 and BASIC.

4. Computer Assisted Instruction - CAI is a method of using a computer system as a means of presenting individualized instructional material to a number of students at the same time.

5. Memory Core - A storage ability of the central data processing unit. It performs calculations and stores data. Storage capacity is measured in words or bits. For the purpose of this study, memory core is a definite measurement for costing and utilization.

6. FTE - Full-Time Equivalent - Is a measure used to determine a full teaching load or full-time appointment. This process converts numbers of credit hours into an equivalent number of full-time faculty. For the purpose of this study one FTE will equal 15 credit hours.

7. Management Information System - Supplies to the top management all data that is required to make decisions and exercise control.

8. Hardware - Is the actual physical equipment which make-up the computer system.

9. Software - A group of instructions which are used to process data in a computer system. These instructions are known as computer programs.

10. Programmer - A person who converts a problem into a set of directions to a computer for the solution of the problem.

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

In order to obtain original data for conducting this study, a mail questionnaire was specifically designed for this purpose. The questionnaire was mailed out to all presidents of Florida Community Colleges. (See sample, Appendix A) Only the twenty-six community colleges which have access to a computer were included in this study. At the end of the required time for responses, 100% response was realized with 21 usable questionnaires for tabulation and computation.

Pearson's correlation coefficient was applied to the data obtained from the questionnaire. This was accomplished to determine if there was a significant relationship between the community colleges with similar FTE size and the budgetary allocation for their computer centers. However, Pearson's correlation coefficient proved to be invalid when used to prove or disprove any of the hypothesis selected for this study. Since in a correlation problem we are concerned with a measure of relationships between two or more variables, rather than predicting one variable from a group of independent variables. We rejected Pearson's correlation coefficient and used the t and chi-square tests to validate our findings.

PRESENTATION AND ANALYSIS OF DATA

HYPOTHESIS 1: At Polk Community College the Computer Center is not providing sufficient computer applications (payroll, registration, admissions, etc.) as compared to the other community colleges of similar FTE (Full-Time Equivalent) and/or community colleges of larger FTE size. Question then is asked: Is there a significant difference in the number of computer applications between either the smaller or larger community colleges and Polk Community College?

NULL HYPOTHESIS: (H_o) There is no significant difference in the number of computer applications between the smaller and larger community colleges and Polk Community College.

$$\bar{X}_1 = \bar{X}_2$$

ALTERNATE HYPOTHESIS: (H_o) $\bar{X}_1 \neq \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $t > 1.714$ or < 1.714 $\alpha = .05$

PROCEDURE:

1. Establish degrees of freedom:

   $n_1+n_2-2= 16+9-2= 23$

2. Compute MEANS ($\bar{X}_1$ and $\bar{X}_2$) and standard deviations (S_1 and S_2) of each sample.

TABLE 1 FTE SIZE AND COMPUTER APPLICATIONS AT FLORIDA COMMUNITY COLLEGES

	FTE	APPLICATION (A)	A-MEAN	(MEAN)^2
	512	20 - 16.65=	+3.35	11.22
	785	14 - 16.65=	-2.65	7.02
	802	11 - 16.65=	-5.65	31.92
	832	18 - 16.65=	+1.35	1.82
	957	15 - 16.65=	-1.65	2.72
	1192	22 - 16.65=	+5.35	28.62
	1226	7 - 16.65=	-9.65	93.12
	1294	17 - 16.65=	+ .35	.12
	1365	18 - 16.65=	+1.35	1.82
	1451	15 - 16.65=	-1.65	2.72
	1730	17 - 16.65=	+ .35	.12
	1741	18 - 16.65=	+1.35	1.82
	1769	17 - 16.65=	+ .35	.12
	2050	24 - 16.65=	+7.35	54.02
	2264	19 - 16.65=	+2.35	5.52
PCC*	2350	15 - 16.65=	-1.65	2.72
	2938	16 - 16.65=	- .65	.42
	25258/17=	283/17=		245.84/17
	$\bar{X}$= 1485.76	$\bar{X}$= 16.65		$S_1 = \sqrt{1446=3.80}$
	3973	16 - 19.25=	+3.25	10.56
	4169	19 - 19.25=	+ .25	.06
	4369	22 - 19.25=	+2.75	7.56
	4534	20 - 19.25=	+ .75	.56
	4546	13 - 19.25=	-6.25	39.06
	5983	22 - 19.25=	+2.75	7.56
	6743	20 - 19.25=	+ .75	.56
	8715	22 - 19.25=	+2.75	7.56
	43032/8=	154/8=		73.48/8=
	$\bar{X}$= 5379	$\bar{X}$= 19.25		$S_2 = \sqrt{9.19=3.03}$

3. Apply formula given:

$\bar{X}_1 = 16.65 \qquad \bar{X}_2 = 19.25$

$S_1 = 3.80 \qquad S_2 = 3.03$

$$t = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

$$t = \frac{19.25 - 16.65}{\sqrt{\frac{3.80^2}{17} + \frac{3.03^2}{8}}}$$

$$t = \frac{2.60}{\sqrt{.85 + 1.15}} = \frac{2.60}{\sqrt{2}}$$

$$t = \frac{2.60}{1.41} = 1.844$$

Since the computed value of t is greater than the critical value of t, we reject the null hypothesis. There is a significant difference between the smaller and larger community colleges.

4. In comparing Polk Community College with smaller community colleges:

   a. Criteria for decision: reject H_o if $t > 1.746$.

   b. Establish degrees of freedom:
   $n-1 = 17-1 = 16$

   c. Find the standard error of the mean:

$$\frac{S_1}{\sqrt{n}} = \frac{3.80}{\sqrt{17}} = \frac{3.80}{4.12} = .922$$

   d. Apply the formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\frac{S_1}{\sqrt{n}}} = \frac{16.65-15.00}{.922} = 1.789$$

   Again the computed value of t is greater than the critical value of t, we reject the null hypothesis; because there is a significant difference between Polk Community College and the smaller community colleges.

5. When we compared Polk Collunity College with the larger community colleges:

   a. The criteria for decision was: reject H_o if $t > 1.897$.

   b. The degrees of freedom were:
   $n-1 = 8-1 = 7$

   c. The standard error of the mean = 1.07

   d. Applying the formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\frac{S_1}{\sqrt{n}}} = \frac{19.25-15}{107} = 3.971$$

   Here again the computed value of t is greater than the critical value of t and we reject the null hypothesis; because there is a significant difference between Polk Community College and larger community colleges.

HYPOTHESIS 2: At Polk Community College the cost of computer operations per FTE unit is higher than the cost of computer operations per FTE unit at other community colleges of similar FTE size (> 1700 ~ < 3000).

NULL HYPOTHESIS: (H_o) There is no significant difference between the cost of the computer operations per FTE unit at Polk Community College and the cost of computer operations per FTE unit of community colleges of similar FTE size.

$\bar{X}_1 = \bar{X}_2$

ALTERNATE HYPOTHESIS: (H_a) $\bar{X}_1 \neq \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $X^2 > 3.84$ $\alpha = .05$

PROCEDURE:

1. Determine degrees of freedom:

   K-1 = 2-1 = 1

2. Determine the expected frequency fe

TABLE 2 Cost Comparison of P.C.C. Computer Operations Per FTE Unit and Community College of Similar FTE Size (< 1700 ~ > 3000)

	$\bar{X}$ FTE	$\bar{X}$ Cost	Total
$\bar{X}$ PCC fo	2350	116	2466
fe	2357.4	106.64	
$\bar{X}$ fo	2120	90	2210
Similar fe	2112.6	97.36	
Colleges			
Total	4470	206	4676
%	.955945	.044056	

3. Apply formula given:

$fo_1 = 2350 \qquad fo_1 = 116$

$fo_2 = 2120 \qquad fo_2 = 90$

$$X^2 = \Sigma^k \frac{(fo-fe)^2}{fe}$$

$X^2 = 1.104151$

Since the computed X^2 value of 1.104151 is < 3.84 at $\alpha = .05$, we accept the null hypothesis that there is no significant difference between the costs of Polk Community College Computer Center and community colleges of similar FTE size.

HYPOTHESIS 3: At Polk Community College the cost per applications (test scoring, faculty research, etc. and the number of applications at Polk Community College is higher than the cost per applications and the number of applications at other community colleges of similar FTE (< 1700 ~ > 3000).

NULL HYPOTHESIS: (H_o) There is no significant difference between cost per applications at Polk Community College and the number of applications compared with the mean cost per application and the mean number of applications at other community colleges of similar FTE size.

$\bar{X}_1 = \bar{X}_2$

ALTERNATE HYPOTHESIS: (H_a) $\bar{X}_1 \neq \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $X^2 > 3.84$ $\alpha = .05$

PROCEDURE:

1. Establish degrees of freedom:

   K-1 = 2-1 = 1

2. Determine the expected fe

TABLE 3 Expected and Observed Cost Per Application and Number of Applications at Polk Community College and Other Community Colleges of Similar FTE Size

	$\bar{X}$ cost/ applications	$\bar{X}$ number of applications	Total
$\bar{X}$ PCC fo fe	7733 7727.61	15 20.3846	7748
$\bar{X}$ similar FTE fo fe	4777 4782.38	18 12.6154	7795
Total %	12510 .997369	33 0.0063095	12543

3. Apply formula given:

$fo_1 = \$7,733, 15$

$fo_2 = \$4,477, 18$

$$X^2 = \Sigma^k \frac{(fo - fe)^2}{fe}$$

$$X^2 = 3.73$$

Since the computed value X^2 is $3.73 < 3.84$ at $\alpha = .05$, we retain the null hypothesis and say the discrepancies from theoretical proportions could easily have arisen from sampling fluctuations alone.

HYPOTHESIS 4: At Polk Community College the cost per applications (registrations, student follow-up analysis, etc.) and the size of the memory core is greater than the mean cost per applications and the mean memory core for other community colleges of similar FTE size (< 1700 ~ > 3000).

NULL HYPOTHESIS: (H_o) There is no significant difference between the Polk Community College cost per applications and the mean memory core for other community colleges with similar FTE size.

$\bar{X}_1 = \bar{X}_2$

ALTERNATE HYPOTHESIS: (H_a) $\bar{X}_1 \neq \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $X^2 < 3.84 < = \alpha$ .05

PROCEDURE:

1. Establish degrees of freedom:

   K-1 = 2-1 = 1

2. Determine the expected frequency fe

TABLE 4 Cost comparisons of memory core vs core size between P.C.C. and community colleges of similar FTE size (> 1700 ~ > 3000)

		Memory Core	Cost for IK of Memory	Total
$\bar{X}$ PCC	fo	32.K	$7,733	7,765.0
	fe	36.88	7728.12	
$\bar{X}$ Similar FTE	fo	27.7	4,777	4804.7
	fe	22.82	4781.88	
Total		59.7	12510	12569.7
%		4.7495	.99525	

3. Apply formula given:

fo_1 = 32K, 7733

fo_2 = 27.7K, 4777

$$X^2 = \Sigma^k \frac{(fo - fe)^2}{fe}$$

X^2 = 1.69736

Since the computed X^2 value of 1.69736 $<$ 3.84 at α = .05, we accept the null hypothesis; that there is no significant difference between the costs of the applications and the size of the memory core for Polk Community College and community colleges with similar FTE size.

HYPOTHESIS 5: At Polk Community College the administrative cost of the Computer Center is higher than other community colleges of similar FTE size for the amount of computer applications (payroll, registration, admissions, etc.) provided by the Center.

NULL HYPOTHESIS: (H_o) There is no significant difference between the administrative costs of the Computer Center at Polk Community College and the administrative costs of other community colleges of similar FTE size.

$\bar{X}_1 = \bar{X}_2$

ALTERNATE HYPOTHESIS: (H_a) $\bar{X}_1 \neq \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $X^2 > 3.84$ α .05

PROCEDURE:

1. Establish degrees of freedom:

   K-1 = 2-1 = 1

2. Determine expected frequency f_e

TABLE 5 Expected and observed frequencies of Polk Community College Computer Center costs and community colleges of similar FTE size.

		$\bar{X}$ FTE	$\bar{X}$ cost of the Computer Center	Total
$\bar{X}$ PCC	fo	2350	$116,000	118,350
	fe	2556.36	115,793	
$\bar{X}$ Similar FTE	fo	2120	86,000	88,120
	fe	1912.20	86,516	
Total		4470	202,000	206,470
%		.0216	.9784	

3. Apply formula given:

$fo_1 = 2350, \quad 116{,}000$

$fo_2 = 2120, \quad 86{,}000$

$$X^2 = \Sigma^k \frac{(fo - fe)^2}{fe}$$

$X^2 = 42.2194$

Since the computed X^2 value of 42.2194 is > 3.84 $\alpha = .05$, we reject the null hypothesis that the cost of operating the Computer Center of Polk Community College is not significantly different. Therefore, we accept the alternate hypothesis H_a that there is a difference at the .05 level of significance at Polk Community College from that of other Florida community colleges of similar FTE size.

HYPOTHESIS 6: The hypothesis at Polk Community College is that there is a significant difference in the utilization, budgetary allocation and computer memory core and the community colleges of similar FTE size (<1700 ~ > 3000).

NULL HYPOTHESIS: (H_o) There is no significant difference in the utilization, budget and memory core at Polk Community College Computer Center and the community colleges of similar FTE size.

$\bar{X}_1 = \bar{X}_2$

ALTERNATE HYPOTHESIS: (H_a) $\bar{X}_1 = \bar{X}_2$

CRITERION FOR DECISION: Reject H_o if $X^2 > 5.99$, α .05

PROCEDURE:

1. Determine degrees of freedom:

   K-1, K = 3-1 = 2

2. Establish the expected frequency fe

TABLE 6 Utilization of Computer Center, $\bar{X}$ Utilization, $\bar{X}$ Cost and $\bar{X}$ Memory Core

	$\bar{X}$ Utilization	$\bar{X}$ Cost	$\bar{X}$ Memory Core	Total
$\bar{X}$ fo PCC fe	15 16.87	$116 122.02	32 24.52	163
$\bar{X}$ fo C.C. fe	18.57 16.78	126.8 121.4	16.8 24.4	162.17
Total %	33.57 .103502	242.8 .748597	48.8 .148748	324.34

3. Apply the formula:

$$\chi^2 = \Sigma^k \frac{(fo - fe)^2}{fe}$$

$$\chi^2 = 3.1496$$

Since the computed χ^2 value of $3.1496 < 5.99$ at $\alpha = .05$, we accept the null hypothesis.

SUMMARY AND CONCLUSIONS

On the basis of the data collected, the null hypothesis was rejected in the following areas:

Hypothesis #1 - There was a significant difference in the number of computer applications between the smaller and larger Florida community colleges. Also, there was a significant difference between Polk Community College and both the smaller and larger Florida community colleges.

Hypothesis #5 - There was a significant difference between administrative costs of the computer center at Polk Community College and the administrative costs at other Florida community colleges with similar FTE size.

On the basis of the data obtained in the mail questionnaire, the null hypothesis was accepted in the following areas:

Hypothesis #2 - There was no significant difference between the costs of Polk Community College Computer Center and at other community colleges with similar FTE size.

Hypothesis #3 - There was no significant difference between the cost per application at Polk Community College and the number of applications compared with the mean cost per application and the number of applications at other community colleges with similar FTE size.

Hypothesis #4 - There was no significant difference between the cost of applications and the size of memory core at Polk Community College and community colleges with similar FTE size.

Hypothesis #6 - There was no significant difference in the utilization, annual budget, and size of the memory core at Polk Community College and at community colleges with similar FTE size.

In view of the above data, the study has indicated that the computer system at Polk Community College is not being fully utilized. The administrative cost is also higher than at other Florida community colleges of similar FTE size.

The results of the study clearly shows a need to conduct further research to determine why the computer system at Polk Community College is not being utilized to at least the same level of other Florida community colleges with similar FTE size. The degree of utilization depends on the human factor more so than on the type of computer system used, or how much of the college's budget is allocated for this purpose. From the additional data obtained in the mail questionnaire, it appears that there may be a relationship between the quality of personnel in the computer center (educational and experience level), the location of the computer center in the organizational structure, and the degree of development of the computer system and its utilization. It is recommended that the data obtained in this research be considered for further study to obtain the answers to the above questions which were beyond the scope of the present study.

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FLORIDA COMMUNITY COLLEGE
COMPUTER UTILIZATION SURVEY

1. Do you have a college computer? _____ yes _____ no

2. If your answer is NO, do you have access to a service bureau or another organization's computer center? _____ yes _____ no or both _____

3. Does your college share its computer with other non-profit organizations? _____ yes _____ no

4. If your answer is YES, are they educational institutions? _____ yes _____ no

5. If other non-profit organizations use your computer, are the funds received used to offset the cost of the computer center? _____ yes _____ no

6. Is your college willing to share software programs with other colleges at no cost? _____ yes _____ no

7. On how many shifts is your computer in operation? Please check-off the number of shifts. _____ one _____ two _____ three

8. What percentage of a 40 hour workweek is your computer in use for: administration %_____ instruction %_____ faculty %_____ (T=100%)

9. What is the number of clock hours per week your computer system is used? _____(1) 10-19 _____(2) 20-29 _____(3) 30-39 _____(4) 40 or over

10. What is the number of computer hours (CPU) per week your computer system is used? _____(1) 1-4 _____(2) 5-10 _____(3) 10-20 _____(4) 20 or over

11. Did a system analysis and feasibility study precede the development of the data processing center? _____ yes _____ no

12. Has a local study been made to ascertain the effectiveness and efficiency of your data processing center? _____ yes _____ no

13. Does your college offer computer courses at the present time? _____ yes _____ no

14. Number of FTE instructors teaching data processing courses _____
(One FTE instructor = 15 credit hours)

15. Number of instructors serving in both capacities: administration of computer center and instruction. _____

16. Number of credit FTE students enrolled in the Fall 1972? _____

17. To whom does the person in charge of the computer center directly report. Please check off the appropriate administrator.

a. President _____
b. Exec. Vice Pres. _____
c. Business Officer _____
d. Research Officer _____
e. Admissions or Registration Officer _____
f. Assistant to President _____
g. Dean of Administration _____
h. Dean of Students _____
i. Dean of Instruction _____
j. Other _____

18. In your opinion to whom should the director of computer center directly report?

a. President _____
b. Exec. Vice Pres. _____
c. Business Officer _____
d. Research Officer _____
e. Admissions or Registration Officer _____
f. Assistant to President _____
g. Dean of Administration _____
h. Dean of Students _____
i. Dean of Instruction _____
j. Other _____

19. College computer center personnel. Please indicate the number of persons in each category.

a. Director _____
b. Assistant Director _____
c. Programmer _____
d. Analyst _____
e. Key Punch Operator _____
f. Computer Operator _____
g. Secretary _____
h. Student Assistants _____
i. Other _____

20. Educational level of college computer center personnel. Please check-off appropriate degree level.

	High School	Associate	Bachelor	Master	Doctoral
a. Director	_____	_____	_____	_____	_____
b. Assistant Director	_____	_____	_____	_____	_____
c. Programmer	_____	_____	_____	_____	_____
d. Analyst	_____	_____	_____	_____	_____
e. Key Punch Operator	_____	_____	_____	_____	_____
f. Computer Operator	_____	_____	_____	_____	_____
g. Secretary	_____	_____	_____	_____	_____
h. Student Assistants	_____	_____	_____	_____	_____
i. Other	_____	_____	_____	_____	_____

21. Indicate the experience level of college computer center personnel in number of years in the profession.

a. Director _____
b. Assistant Director _____
c. Programmer _____
d. Analyst _____
e. Key Punch Operator _____
f. Computer Operator _____
g. Secretary _____
h. Student Assistants _____
i. Other _____

22. Monthly salary level of college computer center personnel.

a. Director $_____
b. Assistant Director _____
c. Programmer _____
d. Analyst _____
e. Key Punch Operator _____
f. Computer Operator _____
g. Secretary _____
h. Student Assistant _____
i. Other _____

23. Please indicate computer center annual budget allocation for administrative computing. Please indicate on approximate figure.

a. Personnel	$_____
b. Hardware	_____
c. Software	_____
d. Budget for rental	_____
e. Service Bureau Contract	_____
f. Depreciation	_____

24. Please indicate computer center annual budget allocation for instructional computing. Please indicate on approximate figure.

a. Personnel	$_____
b. Hardware	_____
c. Software	_____
d. Budget for rental	_____
e. Service Bureau Contract	_____
f. Depreciation	_____

25. Type of computer presently in use for:

	Administration Model	Instructional (if different) Model
a. IBM	_____	_____
b. NCR	_____	_____
c. UNIVAC	_____	_____
d. RCA	_____	_____
e. NOVA	_____	_____
f. Other	_____	_____

	Administrative	Instructional
26. Memory Core in K.	_____	_____

27. Do you have any of the following and how many?

	Administrative	Model	Instructional	Model
a. Terminals	_____	_____	_____	_____
b. Disk Drives	_____	_____	_____	_____
c. Tape Drives	_____	_____	_____	_____
d. Optical Readers	_____	_____	_____	_____
e. Mark Sense	_____	_____	_____	_____
f. Paper Tape	_____	_____	_____	_____
g. CRT	_____	_____	_____	_____
h. Other	_____	_____	_____	_____

28. Computer language used. Please check-off as many as applicable to your college. Indicate appropriate level of utilization.

	Administrative	Instructional
a. COBOL	_____	_____
b. FORTRAN	_____	_____
c. NEAT	_____	_____
d. RPG	_____	_____
e. BAL	_____	_____
f. ASSEMBLER	_____	_____
g. PL 1	_____	_____
h. EASY	_____	_____
i. BASIC	_____	_____
j. APL	_____	_____
k. AUTOCODER	_____	_____
1. Other	_____	_____

29. Computer applications and utilization. Please check-off as many as applicable to your institution.

1. Instruction _____
2. College Personnel System _____
3. Purchasing _____
4. Payroll _____
5. Inventory _____
6. Accounting and Budgeting _____
7. Physical Plant _____
8. Registration _____
9. Student Personnel Records _____
10. Student academic records _____
11. Guidance _____
12. Grade Reporting _____
13. Enrollment Reports _____
14. Student Course Scheduling _____
15. Test Scoring _____
16. Admissions _____
17. Library System _____
18. Graduation Requirement analysis _____
19. Course Conflict Matrix Analysis _____
20. Faculty Teaching Load Analysis _____
21. Faculty's Utilization analysis _____
22. Student Follow-up Analysis _____
23. Faculty Research _____
24. Program Cost analysis _____
25. Academic Master Schedule _____
26. Grade Distribution Analysis _____
27. Cost Estimation Model (CEM) _____
28. Other _____

30. Would you favor a plan to establish a <u>state-wide</u> computer processing center for the explicit use of community colleges? _____ yes _____ no

31. If your answer is NO, would you favor a regional community college computing center? _____ yes _____ no

32. If a state-wide or regional community college computing center be established, what computer system would you recommend?

a. UNIVAC	_____	d. IBM	_____
b. RCA	_____	e. NOVA	_____
c. NCR	_____	f. Other	_____

33. Are potential users at your college interested in computerizing their operations?
_____ yes _____ no

34. Are potential users aware of the benefits they can derive from computerization?
_____ yes _____ no

35. As an administrator of the computer center, are you satisfied with the output from the center in light of the cost? _____ yes _____ no

36. What is the level of satisfaction expressed by your institution toward the following:

a. Software:	b. Hardware:
_____1. Very Low	_____1. Very Low
_____2. Low	_____2. Low
_____3. Medium	_____3. Medium
_____4. High	_____4. High
_____5. Very High	_____5. Very High

37. Indicate the degree of satisfaction in connection with the computer center.

Category	Very High	High	Medium	Low	Very Low
a. Communication between institutions	_____	_____	_____	_____	_____
b. Local community involvement	_____	_____	_____	_____	_____
c. Vendor representatives	_____	_____	_____	_____	_____

38. Does your college use any of the following management techniques? Please check-off as many as applicable to your institution.

1. PERT	_____	5. DELPHI	_____
2. MBO	_____	6. CEM	_____
3. RRPM	_____	7. Other	_____
4. PPBS	_____		

Comments: _____

_____

_____

If you wish to obtain a copy of the survey results, please complete the following:

Name _____

Address _____